

What is claimed is:

1. A method for manufacturing a flash memory device, the method comprising:
 - forming a tunnel oxide layer on a semiconductor substrate;
 - forming a floating gate on the tunnel oxide layer;
 - forming a source/drain region at both sides of the floating gate by implanting ions into the semiconductor substrate including the floating gate;
 - forming spacers on sidewalls of the floating gate;
 - depositing a sacrificial layer on the resulting substrate;
 - exposing some part of the substrate and the floating gate by removing some part of the sacrificial layer and the tunnel oxide layer;
 - forming a first trench on the exposed part of the substrate and a second trench on the exposed part of the floating gate;
 - depositing an oxide layer to fill the first and second trenches with the oxide layer;
 - removing the oxide layer and the sacrificial layer until the floating gate is exposed;
 - removing the spacers and the remaining sacrificial layer to form a floating gate with the second trench and a trench-type device isolation layer; and
 - depositing a gate insulating layer and a second polysilicon layer for a control gate on the resulting substrate.
2. A method as defined by claim 1, wherein the first polysilicon layer is formed more thickly than the first trench.
3. A method as defined by claim 2, wherein the first polysilicon layer is 300Å~2500Å thicker than the first trench as a device isolation layer.
4. A method as defined by claim 1, wherein the spacers are formed of nitride.
5. A method as defined by claim 1, wherein the sacrificial layer is formed of one of TEOS oxides, BPSG, PSG, and HDP oxides.
6. A method as defined by claim 1, wherein the oxide layer is formed of one of TEOS oxides, BPSG, PSG, and HDP oxides.

7. A method as defined by claim 1, wherein the oxide layer and the sacrificial layer are removed through a CMP process or an etch back process until the floating gate is exposed.

8. A method as defined by claim 1, wherein the spacers and the remaining sacrificial layer is removed through a wet etching process using phosphoric acid at a temperature higher than 70Å.